WHAT IS CLAIMED IS:

1. A multibeam exposure head that performs exposure recording on a recording material that is relatively moved in a main scanning direction, comprising:

a beam emitting unit having a plurality of beam emitting port rows each of which is formed by arranging a plurality of beam emitting ports at a predetermined interval in a row; and

an angle changing unit that changes a tilt angle of a row direction of said plurality of beam emitting port rows of said beam emitting unit with respect to a subscanning direction that is perpendicular to a beam emitting direction and said main scanning direction,

wherein said angle changing unit has a function of performing switching between a first exposure recording mode and at least one other exposure recording mode,

wherein said first exposure recording mode performs said exposure recording by setting said tilt angle at a first angle in such a way that a first scanning line group having a predetermined line interval and being formed on said recording material by multiple beams emitted from one of said plurality of beam emitting port rows, and at least

one other scanning line group having the same line interval as said predetermined line interval and being formed on said recording material by multiple beams emitted from at least one other row of remainders of said plurality of beam emitting port rows are spaced apart from each other without superimposing, and each distance between adjacent scanning line groups becomes substantially equal to said predetermined line interval, and

wherein said at least one other exposure recording mode performs said exposure recording by setting said tilt angle at at least one other angle different from said first angle in such a way that each scanning line in said at least one other scanning line group enters between adjacent scanning lines in said first scanning line group, and a line interval in a total scanning line group formed by said at least one other scanning line group and said first scanning line group become a substantially equal interval.

2. The multibeam exposure head according to claim 1,

wherein said first angle is set larger than said at least one other angle.

3. The multibeam exposure head according to claim 1,

wherein a recording resolution in said first exposure recording mode is set higher than a recording resolution in said at least one other exposure recording mode.

4. The multibeam exposure head according to claim 1, further comprising:

an optical system that converges said multiple beams emitted from said beam emitting unit on said recording material and adjusts an imaging magnification of an image to be recorded by said exposure recording.

5. The multibeam exposure head according to claim 1,

wherein said beam emitting unit is constructed using optical fiber arrays.

6. The multibeam exposure head according to claim 1,

wherein said beam emitting unit has a first beam emitting port row and a second beam emitting port row as said plurality of beam emitting port rows, and said one of said plurality of beam emitting port rows is said first beam emitting port row and said at least one other row of remainders of said plurality of beam emitting port rows is said second beam emitting port row,

wherein said first scanning line group is formed on

said recording material by the multiple beams emitted from said first beam emitting port row and said at least one other scanning line group is a second scanning line group being formed on said recording material by the multiple beams emitted from said second beam emitting port row, and said first exposure recording mode performs said exposure recording by setting said tilt angle at said first angle in such a way that said first scanning line group and said second scanning line group are spaced apart from each other without superimposing, and each distance between adjacent scanning line groups becomes substantially equal to said predetermined line interval, and

wherein said total scanning line group is formed by said first scanning line group and said second scanning line group such that each scanning line in said second scanning line group enters between adjacent scanning lines in said first scanning line group and said at least one other angle different from said first angle is a second angle, and said at least one other exposure recording mode is a second exposure recording mode performing said exposure recording by setting said tilt angle at said second angle in such a way that and the line interval in said total scanning line group become the substantially equal interval, and

wherein said angle changing unit has the function of performing switching between said first exposure recording mode and said second exposure recording mode.

7. The multibeam exposure head according to claim 6, wherein said first angle is set larger than said second angle.

8. The multibeam exposure head according to claim 6, wherein a recording resolution in said first exposure recording mode is set higher than a recording resolution in said second exposure recording mode.

9. A multibeam exposure head that performs exposure recording on a recording material that is relatively moved in a main scanning direction, comprising:

a beam emitting unit having a plurality of beam emitting port rows that are arranged parallel to each other, each beam emitting port row being formed by arranging a plurality of beam emitting ports at a predetermined interval in a row; and

an angle changing unit that changes a tilt angle of a row direction of each beam emitting port row of said beam emitting unit with respect to a subscanning direction that

is perpendicular to a beam emitting direction and said main scanning direction,

wherein said angle changing unit is a switching unit that performs switching between two exposure recording modes having different recording resolutions based on Equation (1) given below,

$$n \times (\cos \theta\alpha) \times K = \cos \theta\beta \quad \cdots (1)$$

where n is a number of said plurality of beam emitting port rows, θα is said tilt angle of said row direction of said beam emitting unit corresponding to a first recording resolution, θβ is said tilt angle of said row direction of said beam emitting unit corresponding to a second recording resolution, and K is a ratio between said first recording resolution and said second recording resolution.

10. The multibeam exposure head according to claim 9,

wherein said angle changing unit sets said tilt angle of said row direction of said beam emitting unit at one of "θα" and "θβ" that respectively satisfy relationships expressed by Equations (2) and (3) given below,

$$\tan \theta\alpha = ((m-1) \times p - q)/h \quad \cdots (2)$$

$$\tan \theta\beta = (p/n - q)/h \quad \cdots (3)$$

where m is a number of said plurality of beam emitting ports in each beam emitting port row of said beam emitting

unit, n is a number of said plurality of beam emitting port rows, p is an equal interval between said plurality of beam emitting ports in each row in a direction in which said plurality of beam emitting ports are arranged, h is an equal interval between said plurality of beam emitting port rows in a direction in which said plurality of beam emitting port rows are arranged, q is an equal interval between said plurality of beam emitting ports in each beam emitting port row and said plurality of beam emitting ports in its adjacent beam emitting port rows in the arrangement direction of said plurality of beam emitting ports, and i is a number of lines by which overlapping of scanning lines for exposure recording occurs.

11. The multibeam exposure head according to claim 9, further comprising:

an optical system that converges multiple beams emitted from said beam emitting unit on said recording material and adjusts an imaging magnification of an image to be recorded by said exposure recording.

12. The multibeam exposure head according to claim 9,

wherein said beam emitting unit is constructed using optical fiber arrays.

13. A multibeam exposure head that performs exposure recording on a recording material that is relatively moved in a main scanning direction, comprising:

a beam emitting unit having a first beam emitting port row in which a plurality of beam emitting ports are arranged at a predetermined interval in a row, and a second beam emitting port row in which a plurality of beam emitting ports are arranged at the same interval in a row along said first beam emitting port row; and

an angle changing unit that changes a tilt angle of a row direction of said first beam emitting port row and said second beam emitting port row with respect to a subscanning direction that is perpendicular to a beam emitting direction and said main scanning direction,

wherein said angle changing unit has a function of performing switching between a first exposure recording mode and a second exposure recording mode,

wherein said first exposure recording mode performs said exposure recording by setting said tilt angle at a first angle in such a way that a first scanning line group having a predetermined line interval and being formed on said recording material by multiple beams emitted from said first beam emitting port row, and a second scanning line

group having the same line interval as said predetermined line interval and being formed on said recording material by multiple beams emitted from said second beam emitting port row are spaced apart from each other without superimposing, and each distance between adjacent scanning line groups becomes substantially equal to said predetermined line interval, and

wherein said second exposure recording mode performs said exposure recording by setting said tilt angle at a second angle different from said first angle in such a way that each scanning line in said second scanning line group enters between adjacent scanning lines in said first scanning line group, and a line interval in a third scanning line group formed by said first scanning line group and said second scanning line group become a substantially equal interval.

14. A multibeam recording method that uses a multibeam exposure head that performs exposure recording on a recording material that is relatively moved in a main scanning direction and comprises: a beam emitting unit having a plurality of beam emitting port rows each of which is formed by arranging a plurality of beam emitting ports at a predetermined interval in a row; and an angle changing

unit that changes a tilt angle of a row direction of said plurality of beam emitting port rows of said beam emitting unit with respect to a subscanning direction that is perpendicular to a beam emitting direction and said main scanning direction, said method comprising:

changing said tilt angle of said beam emitting unit using said angle changing unit to obtain a predetermined recording resolution; and

performing said exposure recording at said predetermined recording resolution,

wherein said angle changing unit has a function of performing switching between a first exposure recording mode and at least one other exposure recording mode,

wherein said first exposure recording mode performs said exposure recording by setting said tilt angle at a first angle in such a way that a first scanning line group having a predetermined line interval and being formed on said recording material by multiple beams emitted from one of said plurality of beam emitting port rows, and at least one other scanning line group having the same line interval as said predetermined line interval and being formed on said recording material by multiple beams emitted from at least one other row of remainders of said plurality of beam

emitting port rows are spaced apart from each other without superimposing, and each distance between adjacent scanning line groups becomes substantially equal to said predetermined line interval, and

wherein said at least one other exposure recording mode performs said exposure recording by setting said tilt angle at at least one other angle different from said first angle in such a way that each scanning line in said at least one other scanning line group enters between adjacent scanning lines in said first scanning line group, and a line interval in a total scanning line group formed by said at least one other scanning line group and said first scanning line group become a substantially equal interval.

15. A multibeam recording method that uses a multibeam exposure head that performs exposure recording on a recording material that is relatively moved in a main scanning direction and comprises: a beam emitting unit having a plurality of beam emitting port rows that are arranged parallel to each other, each beam emitting port row being formed by arranging a plurality of beam emitting ports at a predetermined interval in a row; and an angle changing unit that changes a tilt angle of a row direction of each beam emitting port row of

said beam emitting unit with respect to a subscanning direction that is perpendicular to a beam emitting direction and said main scanning direction, said method comprising:

changing said tilt angle of said beam emitting unit using said angle changing unit to obtain a predetermined recording resolution; and

performing said exposure recording at said predetermined recording resolution,

wherein said angle changing unit is a switching unit that performs switching between two exposure recording modes having different recording resolutions based on Equation (1) given below,

$$n \times (\cos \theta\alpha) \times K = \cos \theta\beta \quad \cdots (1)$$

where n is a number of said plurality of beam emitting port rows, $\theta\alpha$ is said tilt angle of said row direction of said beam emitting unit corresponding to a first recording resolution, $\theta\beta$ is said tilt angle of said row direction of said beam emitting unit corresponding to a second recording resolution, and K is a ratio between said first recording resolution and said second recording resolution.